

Patients with mental illness as victims of homicide: a national consecutive case series

Cathryn Rodway, Sandra Flynn, David While, Mohammed S Rahman, Navneet Kapur, Louis Appleby, Jenny Shaw



Summary

Background The media attention received by homicides committed by patients with mental illness is thought to increase stigma. However, people with mental illness can also be victims of violence. We aimed to assess how often victims of homicide are current mental health patients and their relationship to the perpetrators.

Methods In a national consecutive case-series study, we obtained data for victims and perpetrators of all confirmed homicides between Jan 1, 2003, and Dec 31, 2005, in England and Wales. We requested information about contact with mental health services in the 12 months before the homicide for all victims and perpetrators. For victims and perpetrators who had contact with mental health services in the 12 months before homicide, we sent questionnaires to the clinician responsible for the patient's care.

Findings 1496 victims of confirmed homicide died between Jan 1, 2003, and Dec 31, 2005, in England and Wales. Patients with mental illness were more likely to die by homicide than were people in the general population (incidence rate ratio 2.6, 95% CI 1.9–3.4). 90 homicide victims (6%) had contact with mental health services in the 12 months before their death. 213 patients with mental illness were convicted of homicide in the same 3 year period. 29 of 90 patient victims were killed by another patient with mental illness. In 23 of these 29 cases, the victim and perpetrator were known to each other, and in 21 of these cases, the victims and perpetrators were undergoing treatment at the same National Health Service Trust. In these 29 cases in which patient victims were killed by another patient with mental illness, alcohol and drug misuse (19 victims [66%], 27 perpetrators [93%]) and previous violence (7 victims [24%], 7 perpetrators [24%]) were common in both victims and, particularly, perpetrators. In seven of the 29 cases in which the victim was killed by another patient with mental illness, both victim and perpetrator were diagnosed with schizophrenia.

Interpretation The high risk of patients with mental illness being victims of homicide is an important antistigma message, although this risk partly comes from other patients with mental illness; overall, the risk of patients committing homicide is greater than the risk of being a victim of homicide. Identification and safeguarding of patients at risk of violence should be prominent in clinical risk assessment.

Funding Healthcare Quality Improvement Partnership.

Introduction

Homicide by patients with mental illness is one of the most sensitive subjects in mental health, and is perceived as contributing to negative public attitudes to people with mental illness and to community care. People with schizophrenia are particularly viewed as being unpredictable, violent, and dangerous,¹ and so-called stranger homicides (in which the victim does not know the perpetrator) are central to public fear of mental illness. However, stranger homicide is more often associated with alcohol and drug misuse than with mental illness.²

In addition to their role as perpetrators, people with severe mental illness are more likely to be the victims of violence and crime than are people in the general population.^{3–12} In a recent analysis¹⁰ of British Crime Survey data, the relative odds of being a victim of violence in the previous year was three times higher for people with mental illness than for people with other disabilities. Findings from the few studies that have specifically investigated victims of homicide have shown a three-to-

six-times increased risk for people with a history of mental illness, with higher risks for diagnoses of alcohol and drug misuse.^{13–17} However, some studies are limited by a small number of cases, and most have defined mental illness by hospital admission at any time in the past, including many years before the homicide.^{13,15,17}

Several factors could contribute to the vulnerability of people with mental illness to violence.¹⁴ They might be likely to live in socially deprived areas where homicide rates are generally high,^{18,19} and where risk factors for violence (eg, substance misuse and previous violent offending) are known to be highly prevalent.^{4,20} Symptoms of mental illness such as paranoia or irritability and comorbidities such as alcohol or drug misuse or personality disorder could place patients with mental illness at increased risk through conflict with other people. They can be victims of hate crime towards people with disability,^{21,22} which might be made more likely by impaired judgment about safety.

This study was done by the National Confidential Inquiry into Suicide and Homicide by People with

Lancet Psychiatry 2014

Published Online
June 18, 2014
[http://dx.doi.org/10.1016/S2215-0366\(14\)70221-4](http://dx.doi.org/10.1016/S2215-0366(14)70221-4)

See Online/Comment
[http://dx.doi.org/10.1016/S2215-0366\(14\)70272-X](http://dx.doi.org/10.1016/S2215-0366(14)70272-X)

See Online for a podcast about the concept and management of risk in mental health care

Centre for Mental Health and Risk, University of Manchester, Manchester, UK (C Rodway MA, S Flynn PhD, D While PhD, M S Rahman MRCPsych, Prof N Kapur FRCPsych, Prof L Appleby FRCPsych, Prof J Shaw FRCPsych)

Correspondence to:
Miss Cathryn Rodway, Centre for Mental Health and Risk, University of Manchester, Oxford Road, Manchester M13 9PL, UK
cathryn.a.rodway@manchester.ac.uk

Mental Illness (NCI). The NCI collects a longitudinal national case series of all people convicted for homicide in the UK and identifies those who were current or recent patients with mental illness.²³ By contrast with previous research using a matched case-control design,²⁴ we studied mental illness in victims and perpetrators of homicide involved in the same offences. We aimed to establish how many victims are patients with mental illness and to describe their demographic, offence, and clinical characteristics. We also describe perpetrators to establish how often they are patients with mental illness and whether they have the same characteristics as do victims of homicide.

Methods

Data collection

Data collection had four stages: collection of a national sample of homicide victims for whom a conviction for homicide was recorded; acquisition of the victims' offending history; identification of patient victims who had been under the care of mental health services within a year of their death; and, within this group, collection of clinical data.

We obtained data for all suspected homicide offences in England and Wales between Jan 1, 2003, and Dec 31, 2005, from the Home Office Statistics Unit via the Homicide Index (n=2448). The Homicide Index contains comprehensive information about all offences recorded as homicide, including demographic information (eg, age, sex, and ethnic origin) for victims, their relationship to the suspect, the method by which they were killed, and the final outcome for suspects in court. This study sample included confirmed victims of homicide only—ie, when the offence resulted in conviction for murder, manslaughter, or infanticide; when the perpetrator was found not guilty by reason of insanity; or when the perpetrator was unfit to plead (n=1496).

We obtained records of previous convictions from the Police National Computer for all victims in the study sample. Convictions for homicide, attempted murder, grievous bodily harm, actual bodily harm, and common assault were recorded and are referred to as a history of violence.

Information about victims (ie, surname, date of birth, and date of death) was sent to the main hospital and community National Health Service Trust serving the health district in which each homicide occurred. National Health Service Trusts manage hospital care, including community and mental health care, across several sites within their geographical boundary in England and Wales. Information was sent to all 80 organisations in England and Wales that were then providing specialist mental health services. Each Trust was asked to identify the last contact with mental health services that the victim received in the 12 months before death. An audit²⁵ of the NCI case ascertainment procedure was previously done across a random sample of 16 mental health

hospitals, and showed that the identification of mental health contact ranged from 98% to 100%.

In cases in which contact with mental health services was established, a questionnaire was sent to the clinician responsible for the patient's mental health care. The clinician was asked to complete the questionnaire along with members of the mental health team, based on personal knowledge of the patient and case-note review. The questionnaire consisted of sections about demographic characteristics, clinical history, details of final contact with mental health services, and respondents' views about risk and prevention. Diagnoses were assigned by the responsible clinician according to the diagnostic criteria in the International Classification of Disease version 10.²⁶ We received a completed questionnaire in 90 cases (88%).

The National Confidential Inquiry into Suicide and Homicide by People with Mental Illness received Multi Centre Research Ethics Committee approval on Oct 1, 1996, and is registered under the Data Protection Act. The NCI has also obtained exemption under Section 251 of the NHS Act, 2006, enabling access to confidential and identifiable information without informed consent in the interest of improving patient care.

Homicide perpetrator sample

1820 perpetrators were convicted of the 1496 confirmed homicides, including 1283 perpetrators (70%) who were convicted alone and 537 perpetrators (30%) who were part of a group of two or more people convicted for the same offence. The NCI database was used to determine whether perpetrators had been in contact with mental health services within a year of the offence. The method for determining mental health service contact was the same for perpetrators and victims. The patient victims identified in the study were linked to the perpetrator or perpetrators who killed them; the perpetrators' mental health histories were then assessed through the NCI database, by the same method as used for victims of homicide (with use of a similar questionnaire), to construct the sample of patient victims killed by other patients with mental illness.

Statistical analysis

General population and patient rates of death by homicide were calculated with midyear population estimates as a denominator, obtained from the Office for National Statistics.²⁷ Additionally, the Mental Health Minimum Data Set (MHMDS),²⁸ which provides details of the number of patients treated by mental health services in England in a particular year, was used to calculate the rate of death by homicide among patients in contact with mental health services in England in 2004 and 2005 (the years for which the MHMDS overlapped with the study period). Submission of data to the MHMDS has been a requirement of mental health providers since 2003, and has provided national studies with a means to estimate

rates of contact with mental health services.²⁹ We calculated the incidence rate ratio (IRR) and its exact confidence interval with stir procedure in Stata (version 11.0). Exact confidence intervals were applied, as opposed to standard asymptotic approximations, because of the presence of some sparse event counts.

We analysed the group of patient victims killed by other mental health service users. The patient victims and the perpetrators who killed them were considered to be paired. Exact significance McNemar's tests were used to analyse differences between patient victims and perpetrators. All analysis was done with Stata (version 11.0). If an item of information was not known for a case, the case was recorded as missing and removed from the analysis of that item; the denominator in all estimates is therefore the number of valid cases for each item.

Role of the funding source

The funder of the study had no role in study design, data collection, data analysis, data interpretation, or writing of the report. The corresponding author had full access to all the data and final responsibility for the decision to submit for publication.

Results

Most of the 1496 confirmed victims of homicide were boys or men ($n=1035$, 69%), with a male-to-female ratio of 2.2:1. The median age of victims was 35 years (range 0–94). Of 1451 victims with data about ethnic origin, 320 (22%) were non-white.

90 homicide victims (6% of the whole sample) were confirmed as having been in contact with mental health services in the 12 months before their death by the receipt of clinical data, a response rate of 88%, and equivalent to a rate of 0.06 patient homicide victims per 100 000 population across the 3 year study period, or 2.34 per 100 000 mental health service users. For the 2 years for which denominator data were available from the MHMDS, the homicide victim rate for mental health service users was more than twice as high as the rate in the general population (2.34 vs 0.91 per 100 000 population; IRR 2.6, 95% CI 1.9–3.4). In the 3 year study period, 213 patients with reported mental illness were convicted of homicide, an average of 71 per year.

Of the 90 patient victims, most were men or boys, white, and unmarried, with a median age of 36 years (table 1). Most were unemployed or on long-term sickness leave at the time of their death. More than half lived alone, and a history of alcohol and drug misuse was common. Almost half had previously been convicted of a criminal offence, and 17% had previous convictions for violence. More than a quarter had been a victim of violence in the 12 months before their death, as documented in the case notes. Half were killed by an acquaintance, almost a third by a family member, spouse, or partner, and a fifth by a stranger. The most common method used was a sharp instrument.

	n/N (%)
Demographic characteristics	
Male sex	56/90 (62%)
Median age and range (years)	36 (14–91)
Black or minority ethnic origin	10/88 (11%)
Unmarried	66/88 (75%)
Living alone	41/77 (53%)
Homeless	7/78 (9%)
Unemployed or long-term sick leave	55/78 (71%)
Behavioural characteristics	
History of self-harm	41/80 (51%)
History of alcohol misuse	51/82 (62%)
History of drug misuse	45/80 (56%)
History of offending and victimisation	
Previous convictions	41/90 (46%)
Previous convictions for violence	15/90 (17%)
Victim of violence in previous 12 months	19/71 (27%)
Offence characteristics	
Perpetrator details	
Male sex	81/90 (90%)
Median age and range (years)	31.5 (15–71)
Black or minority ethnic origin	19/89 (21%)
Relationship to perpetrator	
Stranger	16/79 (20%)
Acquaintance	40/79 (51%)
Spouse or partner	16/79 (20%)
Family member	7/79 (9%)
Method of homicide	
Sharp instrument	36/87 (41%)
Blunt instrument	13/87 (15%)
Hitting or kicking	17/87 (20%)
Firearm	3/87 (3%)
Strangulation or suffocation	9/87 (10%)
Other method	9/87 (10%)

Table 1: Demographic, offence, and behavioural characteristics of patient victims of homicide

The most common diagnoses in patient victims were schizophrenia, affective disorder, and drug dependence (table 2). 22 patient victims (25%) had dual diagnosis (schizophrenia or affective disorder, and alcohol or drug misuse or dependence), including 13 of 17 patients with a primary diagnosis of schizophrenia. 69 patient victims (78%) were not subject to enhanced care under the Care Programme Approach (a multiagency support framework for patients with mental illness with complex needs, which consists of needs assessment, care planning, allocation of a care coordinator, and regular multidisciplinary review³⁰). At final service contact for patient victims, the perceived risk of being a victim of violence was assessed by clinicians in 60 cases (67%), but for most patients the risk was judged to be low or absent.

Of the 90 patient victims, 29 (32%) were killed by another patient with mental illness, an average of ten victims per year. In one case, two perpetrators were patients with mental

	Patient victims (n=90)	Patient perpetrators (n=29)
Inpatient	4/90 (4%)	4/29 (14%)
Post-discharge patient	13/86 (15%)	1/25 (4%)
Under enhanced Care Programme Approach	19/88 (22%)	10/28 (36%)
Missed last contact	29/80 (36%)	10/24 (42%)
Treatment refusal	14/77 (18%)	7/23 (30%)
Primary diagnosis		
Schizophrenia and other delusional disorders	17/88 (19%)	14/28 (50%)
Affective disorder (bipolar disorder and depression)	17/88 (19%)	1/28 (4%)
Alcohol dependence	15/88 (17%)	1/28 (4%)
Drug dependence	17/88 (19%)	3/28 (11%)
Personality disorder	5/88 (6%)	6/28 (21%)
Any secondary diagnosis	86/90 (96%)	17/29 (59%)
Duration of mental illness (<12 months)	27/81 (33%)	4/27 (15%)
Previous admission as an inpatient	48/90 (53%)	19/29 (66%)
Previously detained under the Mental Health Act	14/90 (16%)	11/29 (38%)
Last contact within 7 days of death	23/88 (26%)	8/29 (28%)
Psychotic symptoms at last contact	3/83 (4%)	6/27 (22%)
Risk of violence estimate: low or none*	44/60 (73%)	19/23 (83%)
Death or homicide thought to be preventable	6/54 (11%)	4/26 (15%)

Data are n/N. *For patient victims, the risk of violence estimate refers to their risk of being a victim of violence; for patient perpetrators, the estimate refers to their immediate risk of committing violence, at their last contact with mental health services.

Table 2: Clinical characteristics of patient victims and patient perpetrators of homicide

illness, but information was available for only one and the results presented therefore refer to 29 patient perpetrators; information about the relationship between perpetrator and victim was available for 26 patient perpetrators. Table 2 shows a comparison with patient victims. Most patients with mental illness who killed another patient were men or boys (25, 86%), of whom 14 (56%) killed a female patient, who was a spouse or partner or ex-partner in six cases and who was an acquaintance in five cases. Most patient perpetrators (27, 93%) had a history of alcohol or drug misuse, and a quarter (seven, 24%) had a history of violence. 19 (66%) of the 29 patient victims had a history of alcohol or drug misuse, and 7 (24%) a history of violence. In 23 of the 26 cases for which information was available, the victim and perpetrator were known to each other as present or former spouses or partners (nine, 35%), acquaintances (ten, 38%), or family members (four, 15%); in three cases the victim and perpetrator were strangers, and in three cases the relationship was unknown. In 21 of these 23 cases, the victim and perpetrator were patients at the same National Health Service Trust. 14 patient perpetrators (50%) had schizophrenia, of whom ten (77% of 13 perpetrators with available information) had previously been convicted of committing a violent offence and 13 (93%) had comorbid alcohol or drug misuse or dependence. Nine of the perpetrators with schizophrenia (64%) had previously been detained under the Mental Health Act, and six (43%) were not subject to enhanced care under the Care Programme Approach.

In seven cases, both perpetrator and victim had a primary diagnosis of schizophrenia. Four patient victims were inpatients at the time of their death; three of these deaths were cases of homicide between inpatients at the same hospital.

Discussion

Historically, mental health services have been more concerned about the risk of patients committing violence than the vulnerability of patients to violent acts. We showed that the rate of being a victim of homicide was two and a half times higher in patients with mental illness than in the general population. 90 victims of homicide during a 3 year period had been under the care of mental health services in the 12 months before they died, an average of 30 patients annually, accounting for 6% of all homicide victims. However, these figures are lower than those suggested by findings from other studies of the risk of homicide in people with mental illness; in our study we used current and recent patients, rather than people under care at any time previously, and calculated rates with all patients with mental illness as a denominator rather than former inpatients only, unlike most previous studies (panel).^{13–15,17}

During the same 3 year period, 213 patients were convicted of homicide in England and Wales, accounting for 12% of all homicide convictions. These figures suggest that patients with mental illness were more than twice as likely to be perpetrators than to be victims of homicide.

A third of patient victims were killed by other patients with mental illness. In most of these cases, victim and perpetrator were known to each other either as intimate partners, family members, or acquaintances, and in most cases were under the care of the same mental health trust. Among patient victims generally, victim and perpetrator were also known to each other in most cases. Alcohol and drug misuse and a history of violence were common in patient victims and, particularly, patient perpetrators. By contrast, few patient victims or perpetrators were psychotic at the time of the offence.²⁴ Violence towards patients is a concern in mental health care; the National Audit of Violence³¹ reported that more than a third of inpatients had experienced violence or threats or had felt unsafe on the ward. Our data show that clinicians also need to be aware of the risk of violence in community settings.

Our findings suggest that specialist mental health providers in England and Wales can expect one of their patients to be the victim of homicide roughly every 2 years; presumably the number of incidents of non-fatal violence to patients is substantially higher. Clinicians in mental health routinely assess patients for risk of suicide and violence but not for risk of becoming victims of violence. However, the similarity in clinical characteristics, such as alcohol and drug misuse, suggests that these risks could occur in the same patients; assessment and care planning should include the different risks that patients could face.³²

Panel: Research in context**Systematic review**

We searched PubMed, Medline, and PsychInfo for articles published up to September, 2011, with the terms "victim", "victimisation", "homicide victim", "victim of violence", and a combination of "homicide and mental illness" and "homicide, victim and mental illness". The search results were restricted to studies analysing victims of violence and homicide and those reporting rates of mental illness within this group. Of the few studies to have investigated mental illness in victims of homicide, evidence suggested the risk of being a victim of homicide to be between three and six times higher for people with mental illness than in the general population.¹³⁻¹⁶

Interpretation

We identified patients with mental illness within a national consecutive case series of homicide victims, and examined the demographic, offence, and clinical characteristics and the care provided to victims in the year before they died. Our findings suggest that patients with mental illness are two and a half times more likely to be victims of homicide than is the general population. This risk partly results from people who are also under mental health care. Improved awareness of the risk of violence towards patients is required, particularly violence from family members, acquaintances, and other patients.

The increased risk of being a victim might be related to the patient's social environment, their use of alcohol or drugs, or the people with whom they came into contact, including other patients with a history of violence. Awareness and appropriate management of these risk factors should be part of clinical care plans.

To our knowledge, this study is the first to describe a national consecutive case series of victims of homicide who were current or recent patients with mental illness. However, the study has several limitations. First, the study sample included only victims of homicides that led to conviction. Second, the sample consisted of patients only and did not include mentally ill people who were not under specialist mental health care. The Adult Psychiatric Morbidity in England study³³ reported the proportion of people with mental disorder under treatment and accessing services by diagnostic group to range from 14% (in people with alcohol misuse or dependence disorders) to 80% (for people with psychosis). Therefore, we acknowledge that use of contact with mental health services as a measure of mental illness will probably underestimate the true prevalence of mental disorder in victims of homicide. Third, the cases in our sample were patient victims for whom we received a completed questionnaire; we could therefore have underestimated the true risk of being a victim of homicide, because of non-response. Fourth, because this study was an observational study, we could not identify causal factors. Fifth, information provided by clinicians could be biased by their awareness of the outcome.

The increased risk of patients with mental illness being victims of homicide reinforces the need for services to put procedures in place to protect vulnerable adults from harm, neglect, and abuse. These findings are also important to challenge stigma and discrimination in mental illness, as a reminder to the public that mentally ill people are often vulnerable to the violence of others. However, the antistigma message is not straightforward; although the risk of being a victim in England and Wales is lower than the risk of being a perpetrator, this pattern might also vary in countries with substantially different homicide rates. We noted that when patients were victims, the perpetrators were often other patients.

Contributors

CR and members of the NCI research team were responsible for data acquisition. CR, SF, and DW were responsible for analysis and interpretation, and for writing up data and drafting the Article, under supervision from LA, NK, and JS. DW provided statistical advice in the analysis of data and advice on drafting. JS, LA, and SF were responsible for study conception and design, and provided advice about interpretation and preparation of the Article. LA and NK provided overall guidance and leadership to the study. MSR extracted clinical information and provided clinical advice. All authors read and approved the final submitted version. LA and JS are joint guarantors for the study.

Declaration of interests

LA chairs the Suicide Prevention Advisory Group at the Department of Health and is a non-executive Director for the Care Quality Commission. All other authors declare that they have no competing interests.

Acknowledgments

The study was done as part of the National Confidential Inquiry into Suicide and Homicide by People with Mental Illness, which is funded by the Healthcare Quality Improvement Partnership. We thank the other members of the research team: Damian Da Cruz, Kirsten Windfuhr, Alyson Williams, Alison Roscoe, Isabelle M Hunt, Saied Ibrahim, Rebecca Lowe, James Burns, Philip Stones, Julie Hall, Huma Daud. We acknowledge the help of district directors of public health, health authority and National Health Service Trust contacts, and consultant psychiatrists for completing the questionnaires. We thank the Home Office Statistics Unit of Home Office Science and Greater Manchester Police.

References

- Angermeyer MC, Dietrich S. Public beliefs about attitudes towards people with mental illness: a review of population studies. *Acta Psychiatr Scand* 2006; **113**: 163–79.
- Shaw J, Amos T, Hunt IM, et al. Mental illness in people who kill strangers: longitudinal study and national clinical survey. *BMJ* 2004; **328**: 734–7.
- Walsh E, Moran P, Scott C, et al. Prevalence of violent victimization in severe mental illness. *Br J Psychiatry* 2003; **183**: 233–38.
- Fitzgerald PB, de Castella AR, Filia KM, Filia SL, Benitez J, Kulkarni J. Victimization of patients with schizophrenia and related disorders. *Aust N Z J Psychiatry* 2005; **39**: 169–74.
- Teplin LA, McClelland GM, Abram KM, Weiner DA. Crime victimisation in adults with severe mental illness. *Arch Gen Psychiatry* 2005; **62**: 911–21.
- Choe JY, Teplin LA, Abram KM. Perpetration of violence, violent victimization, and severe mental illness: balancing public health concerns. *Psychiatr Serv* 2008; **59**: 153–64.
- Maniglio R. Severe mental illness and criminal victimization: a systematic review. *Acta Psychiatr Scand* 2009; **119**: 180–91.
- Teasdale B. Mental disorder and violent victimization. *Crim Just & Behav* 2009; **36**: 513–35.
- Hart C, de Vet R, Moran P, Hatch SL, Dean K. A UK population-based study of the relationship between mental disorder and victimisation. *Soc Psychiatry Psychiatr Epidemiol* 2012; **47**: 1581–90.
- Khalifeh H, Howard L, Osborn D, Moran P, Johnson S. Violence against people with disability in England and Wales: findings from a national cross-sectional survey. *PloS One* 2013; **8**: e55952.

- 11 Pandiani JA, Banks SM, Carroll BB, Schlueter MR. Crime victims and criminal offenders among adults with serious mental illness. *Psychiatr Serv* 2007; **58**: 1483–85.
- 12 Short TBR, Thomas S, Luebbers S, Mullen P, Ogloff JRP. A case-linkage study of crime victimisation in schizophrenia-spectrum disorders over a period of deinstitutionalisation. *BMC Psychiatry* 2013; **13**: 66–75.
- 13 Dembling BP, Chen DT, Vachon L. Life expectancy and causes of death in a population treated for serious mental illness. *Psychiatr Serv* 1999; **50**: 1036–42.
- 14 Hiroeh U, Appleby L, Mortensen PB, Dunn G. Death by homicide, suicide, and other unnatural causes in people with mental illness: a population-based study. *Lancet* 2001; **358**: 2110–12.
- 15 Stark C, MacLeod M, Hall D, O'Brien F, Pelosi A. Mortality after discharge from long term psychiatric care in Scotland, 1977–94: a retrospective cohort study. *BMC Public Health* 2003; **3**: 30–34.
- 16 Crump C, Sundquist K, Winkleby M, Sundquist J. Mental disorders and vulnerability to homicidal death: Swedish nationwide cohort study. *BMJ* 2013; **346**: f557.
- 17 Allgulander C, Nilsson B. Victims of criminal homicide in Sweden: a matched case-control study of health and social risk factors among all 1,739 cases during 1978–1994. *Am J Psychiatry* 2000; **157**: 244–47.
- 18 Draine J, Salzer MD, Culhane DP, Hadley TR. Role of social disadvantage in crime, joblessness, and homelessness among persons with serious mental illness. *Psychiatr Serv* 2002; **53**: 565–73.
- 19 Shaw M, Tunstall H, Dorling D. Increasing inequalities in risk of murder in Britain: trends in the demographic and spatial distribution of murder, 1981–2000. *Health Place* 2005; **11**: 45–54.
- 20 Hiday VA, Swartz MS, Swanson JW, Borum R, Wagner H. Criminal victimization of persons with severe mental illness. *Psychiatr Serv* 1999; **50**: 62–8.
- 21 Flynn MC. The murder of Steven Hoskin: a serious case review. Report for Cornwall Adult Protection Committee. 2007. <http://www.pkc.gov.uk/CHttpHandler.ashx?id=14720&p=0> (accessed April 30, 2014).
- 22 Quarumby K. Getting away with murder: disabled people's experiences of hate crime in the UK. Report for Disability Now, UK Disabled People's Council. 2008. www.scope.org.uk/sites/default/files/pdfs/Campaigns_policy/Scope_Hate_Crime_Report.pdf (accessed Aug 21, 2013).
- 23 Shaw J, Appleby L, Amos T, et al. Mental disorder and clinical care in people convicted of homicide: national clinical survey. *BMJ* 1999; **318**: 1240–44.
- 24 Johansson A, Andersson S, Persson M. A psychiatric and social matched case series comparison of victims of criminal homicide and homicide perpetrators in Sweden. *Nord J Psychiatry* 2007; **61**: 427–32.
- 25 Windfuhr K, While D, Hunt IM, et al. Suicide in juveniles and adolescents in the United Kingdom. *J Child Psychol Psychiatry* 2008; **49**: 1155–65.
- 26 World Health Organisation. The ICD 10 classification of mental and behavioural disorders: diagnostic criteria for research. Geneva: World Health Organization, 1992.
- 27 Office for National Statistics. Population estimates for UK, England and Wales, Scotland and Northern Ireland, population estimates timeseries 1971 to current year. 2011. <http://www.ons.gov.uk/ons/rel/pop-estimate/population-estimates-for-uk-england-and-wales-scotland-and-northern-ireland/population-estimates-timeseries-1971-to-current-year/index.html> (accessed Feb 1, 2012).
- 28 The Information Centre for Health and Social Care. Mental Health Minimum Data Set (MHMDS). <http://www.ic.nhs.uk/services/mental-health/mental-health-minimum-dataset-mhmds> (accessed Feb 1, 2012).
- 29 Appleby L, Kapur N, Shaw J, et al. The National Confidential Inquiry into Suicide and Homicide by People with Mental Illness. Annual report: England, Northern Ireland, Scotland and Wales. 2013. http://www.bbmh.manchester.ac.uk/cmhr/centreforsuicideprevention/nci/reports/AnnualReport2013_V3.pdf (accessed July 17, 2013).
- 30 Department of Health. Effective care co-ordination in mental health services: Modernising the Care Programme Approach. A policy booklet. London: Department of Health, 1999.
- 31 Chaplin R, McGeorge M, Lelliott P. The National Audit of Violence: in-patient care for adults of working age. *Psychiatr Bull* 2006; **30**: 444–46.
- 32 Webb R, Shaw J, Appleby L. Risk of people with mental illnesses dying by homicide. *BMJ* 2013; **345**: f1336.
- 33 McManus S, Meltzer H, Brugha T, Bebbington P, Jenkins R. Adult psychiatric mortality in England, 2007: Results of a household survey. London, National Centre for Social Research, 2009. www.ic.nhs.uk/pubs/psychiatricmorbidity07 (accessed Nov 1, 2013).